Report
08/09/05

1. Experimental Progress:

- We have installed the venturi close to the discharge today. We will start collecting data tomorrow morning.

- I came across several literatures that mentioned about raising pH by stripping carbon dioxide but none of them were done using DI water that might make a difference in our data. These papers also did not provide any data. I am still looking for some published data for both types of water. Following is an abstract of a paper which deals with venturi aeration, CO_2 stripping and pH:

[Ref: "Reducing corrosivity and radon by the venturi-aeration process",O'Brien, Joseph E. *Journal of the New England Water Works Association*, v 109, n 2, Jun, 1995, p105-114].

"Performance data are presented to demonstrate the effectiveness of the venturi-aeration process in reducing corrosivity of potable waters by stripping corrosive carbon dioxide (CO_2). pH values were raised significantly by aeration alone, while alkalinity levels remained constant. Hydroxides or lime may be minimized or eliminated. Radon and VOC's were also removed, thereby addressing several health risks simultaneously. The heart of the process is a compact venturi-aspirator which produces such high shear that CO_2, radon, VOC's (and methane), are stripped from the water in fractions of a second. Since the percentage removal per pass for any contaminant can be determined in a 1-3 day pilot study, the number of passes to achieve any desired goal can be readily determined. Aerated water is discharged to a small covered tank from which air and contaminants are vented to the atmosphere. Treated water is pressurized and pumped to the distribution system. Unlike other aeration technologies, venturi-aeration is carried out in a closed system, and incoming air is filtered and disinfected with ultra-violet. Chlorination is not needed. It is a compact system that can be readily adapted to most pumping stations with minimal structural changes".

- In case pH and resistivity do not improve by CO_2 removal we are procuring anion resin beds to increase pH and start planned experiments of the second phase.